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ABSTRACT

A study examined reading performance, metacognitive knowledge about reading, awareness of the conventions about print, perceptions of reading ability, and causal attributions for success and failure in reading of children with reading difficulties in Year 2 in Australia. One hundred children from the Brisbane region were involved in the study--half with reading difficulties. Children were tested individually on three separate occasions at approximately 2-month intervals. Results indicated that children with reading difficulties were less able to identify letters and words when compared to their peers. They also had lower reading ages for reading accuracy and comprehension than the children without reading difficulties. Children with reading difficulties showed less awareness of the concepts about printed language than their peers. Self-beliefs and causal attributions indicated that the children with reading difficulties perceived their attainment to be higher than their actual achievement might indicate. In accounting for their failure in reading, children with reading difficulties made reference to a lack of ability and to being unlucky. (Six tables of data are included and 37 references are attached.) (MG)

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# READING DIFFICULTIES, METACOGNITION AND AFFECT

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## Reading Difficulties, Metacognition and Affect

Children with reading difficulties may be noticed in the early years at school and quickly become the focus of attention for both the regular classroom teacher and remedial specialists in the school setting. While there are a number of complex and interacting factors related to children's poor performance in reading, with respect to the cognitive and affective areas of development, research has suggested that the lack of metacognitive knowledge (Bos & Filip, 1984; Myers & Paris, 1978; Moore, 1983; Wong & Wong, 1986), negative self-beliefs and poor motivation (Nicholls, 1979; Hiebert, Winograd & Danner, 1984) are contributing factors.

Based upon a newly emerging framework from the fields of cognitive psychology (specifically metacognition) and motivation, it has been argued that the interactive operation of an individual's knowledge about the value of strategies and perceptions of one's ability, as well as beliefs about reasons for task success and failure influence performance (Kurtz & Borkowski, 1984; Winograd & Paris, 1989).

Much of what we have learned about individual differences in reading achievement and factors related to these differences comes from cross-sectional studies. However, more recently researchers have begun to examine the development of reading ability over time. These longitudinal studies (Clay, 1967, 1979; Juel, 1988; Juel, Griffith & Gough, 1986; Lundberg, 1984; Perfetti, Beck, Bell & Hughes, 1987) have found group differences between children in the early years of schooling.

With respect to the variables of interest in this paper, metacognition and affect, the authors are unaware of any Australian research that has examined these factors in young children with reading difficulties in a longitudinal study. However, a number of authors have compared metacognitive knowledge of good and poor readers, including that of young primary school pupils (e.g., Moore & Kirby, 1981; Paris & Myers, 1981). Studies have shown that younger children show less metacognitive knowledge about reading (Myers & Paris, 1978; Moore & Kirby, 1981) than older readers. Younger readers generally perceive reading as a decoding task, while older readers regard reading as a meaning getting activity. However, with respect to achievement level in young readers, Moore and Kirby (1981) noted

only one significant within grade difference in metacognitive knowledge for high and low ability second graders. Specifically, high ability second grade readers, more so than low ability second graders, reported that texts chosen by the teacher would be easier to read than self-selected books.

A second type of metacognition is the individual's awareness of or knowledge about the conventions of print. This has been investigated by a number of authors (Clay, 1979; Downing, 1970; Huba & Kontos, 1985), with results pointing to a developmental trend (Johns, 1980; Reid, 1966), as well as good and poor reader differences. For example, print awareness, measured either before or during first grade is related to end of year Grade 1 reading achievement (Ayers & Downing, 1982; Day & Day, 1981; Taylor & Blum, 1981). Disabled second grade readers also demonstrate less print awareness than normal second graders (Huba & Kontos, 1981).

A lack of progress in reading may lead children with reading difficulties to exhibit beliefs about themselves that account for a share of observed differences in reading performance and/or inhibit the use of or effectiveness of metacognitive knowledge and strategies. In addition, the children's beliefs about why they succeed and fail in reading are likely to influence future reading performance.

Negative self-beliefs have been seen as one possible cause of the passive response to reading observed in many poor readers (Johnston & Winograd, 1985). Furthermore, Oka (1985) found a relationship between poor motivation and metacognition in under- and over-achievers in reading at the third and fifth grades. Results revealed that while both groups had similar metacognitive knowledge there were differences on the motivational variables.

An examination of research that has investigated the variables of self-perceptions of reading ability and causal attributions in good and poor readers strongly highlight the group differences. Significant relationships between self-perceptions of reading ability and grade level and reading achievement have been noted in a number of studies (e.g., Nicholls, 1979; Paris & Oka, 1986). However, Nicholls (1979) found that the perceived attainment of six and eight year olds was typically higher than actual attainment (as measured by teaching ratings). Nevertheless, studies suggest that for most pupils with learning difficulties decrements in

academic perceptions occur by Grade 3 (Chapman, 1987). Good and poor readers also appear to have different causal attribution patterns (Butkowsky & Willows, 1980; Hiebert, Winograd & Danner, 1984). Poor readers attribute failure more often to internal causes, particularly lack of ability (Butkowsky & Willows, 1980).

This study provides a picture of metacognition and affect of children with reading difficulties in Year 2 in Australia's first longitudinal study of children with reading difficulties. Specifically, the paper reports the findings related to reading performance, metacognitive knowledge about reading, awareness of the conventions about print, perceptions of reading ability and causal attributions for success and failure in reading.

## METHOD

### Participants

Schools participating in the study were randomly selected from the Brisbane region. Schools were included only if principals indicated a willingness to take part. Thirty seven state education department schools and 11 catholic independent schools were involved.

One hundred children were involved in the study. One child with a reading difficulty was selected in each school except for the two occasions where two children were selected. In one school the two children with reading problems were twins, and in the other school the principal argued that two children with reading difficulties should be included. The children had been identified by school personnel as not making the expected progress in reading in comparison to their peers. In all cases remedial help was being offered or was considered desirable. Children were excluded from the study if they clearly had an intellectual disability, an emotional disturbance, experienced serious physical or sensory disabilities, or whose first language was not English. No children who had repeated a school year were included. An equal number of matched, normally achieving children were also selected. The children originated from the same classroom and were within six months of the age of the child with the reading difficulty. In all cases except for two pairs the children were also matched on sex. The boy-girl pairs were the result of working in two very small schools where Year 2 children could

be matched on the criteria of the same classroom and age but not sex. Parental consent was obtained for participation in the study.

Measures

The measures described in this paper are part of a battery of measures employed in a longitudinal study being undertaken by the Schonell Special Education Research Centre. The assessment measures discussed here relate to reading performance, metacognitive knowledge about reading, print awareness, perception of reading ability and causal attributions for success and failure.

In order to assess early reading performance the following measures were administered:

- Letter Identification Subtest of the Concepts about Print Test (Clay, 1985),
- Word Identification Subtest of the Concepts about Print Test (Clay, 1985), and
- The Neale Analysis of Reading Ability, Revised - Form 1 (Neale, 1988). The Neale Analysis of Reading Ability is a standardized instrument widely used in the South Pacific region. It consists of a set of graded passages for establishing accuracy and comprehension of oral reading.

Metacognitive knowledge was assessed by using an adapted version of the interview schedule developed by Myers and Paris (1978). This measure assesses children's metacognitive awareness of variables that influence reading. The use of an adapted version followed pilot testing which revealed wording and comprehension difficulties in some Year 2 children on some questions. These questions were changed or deleted.

Pupil's print awareness, another form of metacognitive knowledge, was assessed by employing the Concepts about Print subtest (Clay, 1985). This measure examines students' understanding of basic concepts and reading-related skills, such as knowledge of the language of reading, knowledge of punctuation and the conventions of print.

In the affective domain, perceptions of reading ability were collected using an instrument employed by Nicholls (1979), while causal attributions for pupil's successful and

unsuccessful reading performances were obtained by an adaption of the Reading Attribution Rating Scales (van Kraayenoord, 1986) and the Reading Attribution Questionnaire (van Kraayenoord, 1986). The Rating Scales were designed to measure the importance of different reasons for success and failure in reading respectively. The children responded to a series of statements reflecting the reasons for success and failure by marking how true each given reason was for them. The scales were ranked as "very true" (1) through "somewhat true" (2) to "not true" (3). Therefore, possible score ranges for the variables of "ability", "stable attitude", "typical effort", "learning", "task", "teaching", "family", and "luck" were from 1 to 3. The lower the score the more important the rating.

### Data Collection

The assessment measures were collected on 3 separate occasions at approximately 2-monthly intervals. The assessments were conducted in a separate room in each of the schools. Three female research assistants, all with graduate training and extensive teaching experience, who were known to the children, collected the data. Children were tested individually.

### Data Analysis

A series of pair-wise t-tests or the chi square statistic was used as appropriate in order to determine whether differences on each of the dependent variables were statistically significant.

## RESULTS

The findings relating to 100 Year 2 children are reported here. There were 74 males and 26 females. On the occasion of first assessments the youngest Year 2 pupil with a reading difficulty was 78 months and the oldest 92 months. On the same occasion the youngest Year 2 pupil making adequate progress was 77 months and the oldest 94 months.

### Reading Performance

The Letter Identification Test requires children to recognize a page of printed letters of the alphabet in upper and lower case. An examination of the results following the pair-wise t-

tests indicated a significant group difference. In terms of letter identification the group of children with reading difficulties recognized fewer letters than their peers (Table 1).

The Word Identification Test examines the ability of the children to identify 15 high frequency words in isolation. Analysis of the word identification scores revealed a significant difference between the groups. In comparison to their peer group, the children with reading problems had to a lesser extent mastered a reading vocabulary of high frequency words (Table 1).

A comparison of the reading ages for accuracy and comprehension of the two groups on the Neale Analysis of Reading Ability Test was undertaken by using pair-wise t-test analyses. Significant differences between the groups were found in both accuracy and comprehension. On both variables the children with reading difficulties performed less well than their counterparts (Table 1).

Metacognitive Knowledge about Reading

The responses obtained to the questions on the adapted version of the Myers and Paris (1978) interview schedule were classified into categories. Where pupils gave multiple responses only the first response was used. In addition, where the child did not respond the data were coded as missing. The paired-nature of our data allowed us to determine whether the responses within pairs were independent, by using the Pearson chi square statistic. In addition, where appropriate Cohen's Kappa (*K*) was used. Cohen's *K* is a measure of agreement and tests whether the exact agreement of two children in a pair is greater than chance. The results are reported according to the questions asked.

When children were asked about the influence of ability on reading, the results indicated that there were no significant differences between the children in the pairs for "general skills" or "specific skills" $\chi^2(1) = 1.07$, $p > .05$. Twenty seven of the 48 pairs (56%) were in agreement for the two categories of responses, but the results are not statistically significant ($K = .14$; SD = .14).

Awareness that reading and mathematical ability need not be related was also examined. No statistically significant differences were found between the children in the pairs

for the categories "yes and sometimes", "no" and "don't know" ($\chi^2(4) = 1.64$, $p > .05$. Thirty-three out of fifty pairs (66%) showed agreement, but this was not statistically significant ($K = .02$; SD = .13).

Knowledge about the effect of reading resources and resulting opportunities on reading ability was also assessed. Thirty six of the 50 pairs indicated that the wealthy child with related reading opportunities would read better than the child from less advantageous environmental circumstances. No statistical differences were observed between the children in the pairs ($\chi^2(1) = .22$, $p > .05$. While 36 pairs out of 42 agreed (86%) the results are not statistically significant ($K = -.07$; SD = .03). Thirty-three pairs said that the amount of books or practice resulting from being able to read more books would account for the wealthy child's reading ability. There were no significant differences between the children in the pairs with respect to this response $\chi^2(1) = .33$, $p > .05$, with a Cohen's $K = -.06$ (SD = .05).

With respect to task variables, awareness of the influence of the length of a passage was assessed. No significant difference between the children in the pairs was detected ($\chi^2(2) = .15$, $p > .05$), with 40 of the 50 pairs indicating that the boy who had to read 5 pages would need more time to complete the task than a boy with only two pages. Furthermore, there were no significant differences between the children in the pairs with respect to which boy would remember the most ($\chi^2(4) = 1.23$, $p > .05$). Only 22 of the 50 pairs (44%) showed agreement, and this was not statistically significant ($K = -.02$; SD = .10).

Assessment of awareness of story content assisting comprehension was also undertaken. No statistical differences between the children in the pairs emerged ($\chi^2(6) = 3.59$, $p > .05$, with 35 of the 50 pairs indicating that the child who had experienced a visit to a particular city would be better able to comprehend a story about that city.

Awareness of task interest (type of story) on reading speed was also examined. No statistical differences emerged between children in the pairs with respect to the "child-selected", "teacher-selected" or "inappropriate" responses ($\chi^2(1) = 4.90$, $p > .05$. However, a subsequent analysis of "child-selected" versus "teacher-selected" texts showed a significant difference between the children in the pairs, $\chi^2(1) = 4.36$, $p = .037$. Nineteen of the 48 pairs showed agreement, but of greater interest is the finding that 29 out of the 48 (60%) pairs

showed no agreement. This indicates that the children's preferences for either self-selected or teacher-selected books was not consistent within the pair. In addition, there was no consistent pattern to the disagreement. The data showed thirteen cases of a self-selected/teacher-selected disagreement, and sixteen cases of a teacher-selected/child-slected disagreement between the child with reading difficulties and the matched pair. This finding suggests that these children as a group were highly ambivalent as to whether reading speed would be influenced more by self-selected or teacher-selected books.

Children were asked to consider and to decide which mode of reading (oral or silent) was quicker for themselves? No statistical differences emerged between the children in the pairs as to their responses ("oral", "silent", "same", "don't know"), $\chi^2(6) = 3.10$, $p > .05$.

Awareness of goals of reading concerned with "word-for-word" recall versus providing the "general meaning" and "other" indicated no significant differences between the children in the pairs in these categories $\chi^2(4) = 6.65$, $p > .05$. Fifteen out of 33 pairs (45%) showed agreement but this was not statistically significant ($K = -.02$; SD = .11).

Knowing the goal of a reading task may alter the strategies used during the task. Awareness of this potential influence was investigated, however, there was no significant difference between the children in the pairs in the responses ("specific strategy", "general aid", "other"), $\chi^2(4) = 8.05$, $p > .05$). Although twenty-six of the 56 pairs (57%) showed agreement, this was not statistically significant ($K = .25$; SD = .12).

Being able to recall a story generally would be easier than recalling it word for word. Results of the chi-square analysis to establish whether differences between the children in the pairs existed for their responses ("word for word", "general meaning", "other"), indicated no significant differences ($\chi^2(4) = 2.30$, $p > .05$). Twenty-six out of 50 pairs (52%) indicated agreement in their responses, but this was also not statistically significant ($K = .09$; SD = .12).

Awareness of strategy variables was examined through two separate questions. With respect to whether the children in the pairs offered a "strategic solution" or a "non strategic/default solution" to the question "What do you do if you don't know what a word means that you read?", chi square analyses indicated no significant differences ($\chi^2(1) = .07$,

$p > .05$. While 37 out of 49 pairs (76%) indicated agreement in their responses, there was no statistically significant difference ($K = .04$; SD = .14).

Similar findings can be reported for the questions "What do you do if you don't know what a whole sentence means?". Chi square analyses indicated no significant differences between the children in the pairs in terms of "strategic" and "nonstrategic" solutions ($\chi^2(1) = 1.04$, $p > .05$). Twenty-two out of 56 pairs indicated agreement (48%), but this was not statistically significant based on ($K = -.15$; SD = .14).

In summary, the results of these questions tapping these 2nd grade pupils' metacognitive knowledge about reading show that the children in the pairs responded in a similar fashion throughout except on the question relating to awareness of task interest on reading speed. The results for this question reveal a very inconsistent pattern with respect to both agreement and disagreement. However, for the most part, with respect to metacognitive knowledge there were no differences between the pairs comprising a child with reading difficulties and a child without reading difficulties.

Awareness of Conventions about Print

Clay's Concepts about Print test (1979) was used in this study to allow us to examine different but related aspects of metacognitive knowledge about reading. The pair wise t-test analysis between group means for the total number of concepts mastered on the Concepts of Print Test indicated a significant difference. The children making good progress in reading showed greater awareness of the concepts about printed language than the children experiencing reading problems (Table 2).

Reading Perception and Causal Attributions

Self-perceptions of reading achievement were also examined using a measure developed by Nicholls (1979). Results of the paired t-test did not reveal a significant group difference (Table 3). Therefore, the perceptions of their reading ability of the children with reading difficulties was similar to that of their peers. It is interesting to note that on average both groups of readers believed they were in the top third of their class in reading ability.

Two measures of reading attributions for success and failure in reading were employed in this study: the Causal Attribution Rating Scales and the Reading Attribution Questionnaire.

The data for the Causal Attribution Rating Scale for Success were analyzed by a series of paired t-tests separately for each attribution category. The results of the t-tests on the "typical effort", "learning", "task ease", "teacher", "family" and "luck" variables showed there were no significant differences (Table 4). However significant group differences were found for "ability" and "stable attitude". The children making good progress in reading made stronger attributions to "ability" and "stable attitude" than the children with reading difficulties (Table 4). In considering the dimensions of various attributions, the children making progress in reading differed from the children with reading difficulties on causes that were internal and stable.

The data of the Causal Attribution Rating Scale for Failure were analyzed by a series of paired t-tests. No significant differences were found on "stable attitude", "typical effort", "learning", "task difficulty", "teacher" and "family" (Table 5).

There was however a significant group difference for "ability" and "luck" with the children with reading difficulties making stronger attributions to "lack of ability" and "being unlucky" than the children without reading difficulties. That is, the children with reading difficulties believed that their "lack of ability" and "being unlucky" played a greater role in reading failure than did the children without reading difficulties (Table 5). From these results it can be seen that the children with reading difficulties attributed failure in reading to both internal and external causes.

In summarizing the findings regarding the Attribution Rating Scales it is interesting to note that children with reading difficulties regarded "lack of ability" more as a reason for failure than their peers, while children without reading difficulties regarded "ability" more as a reason for success. In addition, children with reading difficulties regarded "being unlucky" as important in reading failure more than children without reading problems. Children without reading problems regarded "stable attitude" as more important in reading success than did their peers.

With respect to the second attribution measure the data reported here relate to two of the questions on the Reading Attribution Questionnaire concerned with the reasons children

give for their own success and failure in reading. Eleven children gave multiple responses to these two questions. Because of the small number of multiple responses (n=19) only the first response for each question was analyzed for all children.

The reasons the children gave for their own success in reading were investigated by asking "what are some of the reasons why you do well when you read?". Chi square analyses were performed on the total number of responses for each of the generated attribution categories. No significant differences were found (Table 6). Scrutiny of Table 6 reveals that the most frequently cited attribution for success in reading for the children with reading difficulties was the previous experience (e.g., "I practice"), while for the children without reading difficulties the most frequent cited attribution for success was ability (e.g., "I am a good reader"). The second most stated response for the children with reading difficulties related to reading strategies or performance (e.g., "I sound out the words").

Table 6 also presents the number of responses for each group to the question "what are some of the reasons why you do badly when you read?". The chi square analyses revealed no significant group differences. Table 6 indicates the most frequently cited attribution for failure in reading for the children with reading difficulties was a lack of ability (e.g., "I'm not a good reader"). For the children without reading difficulties the most frequently cited attribution was task difficulty (e.g., "The book is too hard"), although lack of ability was the second most stated response for this group.

Thus, for the children with reading difficulties, previous experience, an internal, stable attribution resulted in success, and similarly the internal, stable attribution of lack of ability resulted in doing poorly in reading. For personal success, the children without reading difficulties regarded ability, an internal, stable variable, as the most influential while for poor reading performance the difficulty of the task, an external, stable variable was considered most influential.

## DISCUSSION

This study contributes to the growing research that examines reading and related variables in longitudinal studies. In the initial year of this first Australian longitudinal study of

children with reading difficulties and their peers a number of aspects of reading and reading-related factors were considered.

In terms of reading performance the children with reading difficulties were less able to identify letters and words when compared to their peers. They also had lower reading ages for reading accuracy and comprehension than the children without reading difficulties. These results show that whether reading is assessed in isolation or in context, problems with reading in this sample of pupils were evident, substantiating clearly the selection of students by the participating schools.

Recently Juel (1988) has stated that poor reading performance observed in a group of readers in Grade 1 continued to be evident in Grade 4. Similar findings have also been noted in a follow-up study by Clay (1979) and Lundberg's (1984) longitudinal research. It will be important in our study also to monitor the children's progress to determine whether a similar pattern emerges for those with reading difficulties. In a country, such as Australia, where remedial intervention is not legally mandated and specialist teachers are not as numerous as in the United States, some of the children in our study will receive little additional help from support teachers, even though it may be considered desirable. The effects of the lack of intervention, short remedial intervention and continuous help can be investigated in our study as the children move through the school system.

One variable suggested as influencing reading achievement is that of metacognitive knowledge. In this study the analyses showed only one significant difference between the child with reading difficulties and the child without reading difficulties in each pair for categories relating to questions designed to establish awareness of personal, task and strategy variables on reading. Therefore, only one difference in metacognitive knowledge emerged.

In one other Australian study, Moore and Kirby (1981) found only one group difference related to awareness of task interest on remembering what was read. However, Moore (1982) has remarked that, in the 1981 study, good second grade readers' preference for teacher-selected texts may have been due to the nature of these texts. Children explained they were "rather stultified text" (Moore, 1982, p.126). That is, the mundane books the teacher chose

were easier to read than books which the child chose. In our study the difference related to the parallel question examining awareness of task interest on reading speed. Here, however, there was no consistent pattern that can be readily explained in terms of reasons for the responses given.

The largely consistent finding of a lack of within grade level differences in metacognitive knowledge in reading here and in Moore and Kirby's (1981) study of Year 2 readers does, however, point to the suggestion that Year 2 readers are still developing their awareness of variables that influence reading. The acquisition of metacognition at this level then is clearly not a function of poor reading performance. Nevertheless, the literature clearly points to good/poor reader differences in metacognitive knowledge (Forrest & Waller, 1981; Garner & Kraus, 1981-1982; Paris & Myers, 1981) and we would expect these differences to emerge. It will be interesting to observe if particular performance factors are pointers to changes in metacognitive knowledge about reading.

While, on the whole, no differences were found when global perspectives of metacognitive knowledge of reading were examined, significant differences between groups were found when a more specific aspect of metacognitive knowledge was studied, in particular awareness of the conventions about print. Children with reading difficulties showed less awareness of the concepts about printed language than their peers. Just as these children with reading difficulties have yet to establish identification of letters and basic words, so they have yet to master some fundamental concepts about print. Data not reported here indicate those concepts not mastered include word-by-word pointing, line sequence, left page before right, letter order, the meaning of question marks, commas and speech marks, and reversible words (van Kraayenoord, Ashman, Elkins, Mudge & Felstead, 1989). These concepts about print are frequently learned by children in picture book reading interactions with parents (Ninio & Bruner, 1978; Snow & Ninio, 1986) or during story-reading and story-telling in preschool and school contexts (Clay, 1967; Mason, McCormick & Bhavnagari, 1986; Snow, 1983). It could be suggested that children with reading difficulties may not have taken advantage of these learning situations in the same way as those children who are now making good progress in reading.

Self-beliefs and causal attributions as factors related to reading achievement were also examined in this study. Similar perceptions of reading ability were found for both groups. The children with reading difficulties perceiving their attainment to be higher than their actual achievement might indicate. This is consistent with the findings of Nicholls (1979) who has suggested that the absence of a relationship between perceived and actual attainment in the early years of school reflects younger children's inability to analyze causes of success and failure in a logical, adult-like way. If, indeed, young children have a high academic self-concept which remains high until Grade 3 (Chapman, 1988; Stipek, 1981), then this coming second year of our study will be one in which the decrease in academic perception will occur and an examination of contributing factors can be made. Stipek and Daniels (1988) suggested recently that both changes in the child (e.g., age) and classroom environment factors (e.g., nature of the evaluation) should be examined simultaneously when exploring children's perceptions of their competence.

Findings from the rating scales indicating beliefs about the causes of the pupils' reading success showed that the children without reading difficulties made stronger attributions to ability and stable attitude (internal factors). This is consistent with the findings of a number of studies (Butkowsky & Willows, 1980; Chapman & Boersma, 1979; Pearl, Bryan & Donahue, 1980; van Kraayenoord, 1986).

In accounting for their failure in reading, children with reading difficulties made reference to both lack of ability and being unlucky. The finding that children with reading difficulties perceive failure to be a result of lack of ability is consistent with the literature (Butkowsky & Willows, 1980), however, the finding with respect to being unlucky is not.

Interpretation of these results of both internal and external attributions to failure is difficult. Lack of ability attributions suggest that children with reading difficulties see little hope of altering their achievement status in the future. Canino (1981) argued that these individuals may be less motivated and develop a lower self-esteem. However, by citing a lack of luck as a reason for failure, the children with reading difficulties may be suggesting that failure is infrequent and easily attributable to external factors such as chance.

When the children were asked to respond freely to questions about their success and failure in reading, however, no group differences were found. Most commonly, the children with reading difficulties indicated their personal success was due to previous experience and their poor reading performance was due to lack of ability. For the children without reading difficulties, the most common reason for doing well in reading was ability, while their own poor reading performance was due to task difficulty.

The variance in the findings on the two attribution instruments may stem from the nature of the assessment tools. The efficacy of using structured rating scales or the open-ended format for measuring attributions with this age group should be investigated.

The picture that emerges from this first year of our longitudinal study of children with reading difficulties is complex. The findings relating to reading performance and metacognitive knowledge of the conventions about print show the children with reading difficulties to be weaker than their peers. This is not completely the case especially when a more global perspective of metacognitive knowledge about reading is considered. It has been argued here that this type of metacognitive knowledge is later developing than that of print awareness and that within group differences in the prior form of metacognitive knowledge may not emerge till later.

In terms of the affective characteristics of the children with reading difficulties, their self-perceptions of ability are as positive and no different from those of their counterparts. On the other hand, findings relating to beliefs about reading success and failure are inconsistent. Taking the worst possible view, the evidence suggests that the children with reading difficulties are beginning to become more internally orientated for failure. This may indicate the first signs of a developing ability to analyze the causes of their lack of progress in reading, which in the future will result in a decrement in self-concept and more fixed negative attributions.

In summary, this study of reading difficulties, metacognition and affect in Year 2 provides us with some interesting but perplexing findings. Next year a second cohort of children will be added to our sample. This will allow us to see whether the results described here are duplicated. In addition, as the Year 2 pupils in this study move into Year 3 we will be

able to track their progress and formulate a more comprehensive picture of their difficulties, metacognition and affect.

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Table 1

Reading Performance by Group

| | Mean | SD | Max | Min | t | p |
|---|---|---|---|---|---|---|
| Letter Identification | | | | | | |
| Reading Difficulties[1] | 48.02 | 7.82 | 54.00 | 16.00 | | |
| | | | | | 5.02 | 0.000* |
| No Reading Difficulties[1] | 53.54 | 0.79 | 54.00 | 51.00 | | |
| Word Identification | | | | | | |
| Reading Difficulties[1] | 7.36 | 4.31 | 15.00 | 0.00 | | |
| | | | | | 9.98 | 0.000* |
| No Reading Difficulties[1] | 13.28 | 2.39 | 15.00 | 7.00 | | |
| Reading Age - Accuracy | | | | | | |
| Reading Difficulties[2] | 79.23 | 6.91 | 93.00 | 72.00[3] | | |
| | | | | | 3.72 | 0.003** |
| No Reading Difficulties[2] | 98.15 | 19.95 | 150.00 | 77.00 | | |
| Reading Age - Comprehension | | | | | | |
| Reading Difficulties[4] | 76.49 | 9.63 | 102.00 | 67.00[5] | | |
| | | | | | 6.80 | 0.000* |
| No Reading Difficulties[4] | 95.49 | 17.10 | 155.00 | 72.00 | | |

1. RD(N) = 50, NRD (N) = 50
2. RD (N) = 13, NRD (N) = 13
3. As the lowest reading age for accuracy on the Conversion Tables is 72 months, children who performed below this age level were considered as missing data.
4. RD (N) = 39, NRD (N) = 39
5. As the lowest reading age for comprehension on the Conversion Tables is 67 months, children who performed below this age level were considered as missing data.

* $p < .001$

** $p < .01$

Table 2

Mastery of Concepts about Print

| | Mean | SD | Max | Min | t | p |
|---|---|---|---|---|---|---|
| Number of Concepts Mastered | | | | | | |
| Reading Difficulties[1] | 17.32 | 3.47 | 23.00 | 7.00 | | |
| | | | | | 7.52 | 0.000* |
| No Reading Difficulties[2] | 20.76 | 2.69 | 24.00 | 15.00 | | |

1. RD (N) = 50
2. NRD (N) = 50

* $p < .001$

Table 3

Perceptions of In-class Reading Achievement Level

| | Mean | SD | Max | Min | t | p |
|---|---|---|---|---|---|---|
| Perceptions | | | | | | |
| Reading Difficulties | 9.68 | 8.84 | 1.00 | 30.00 | | |
| | | | | | 1.57 | .122 |
| No Reading Difficulties | 7.26 | 6.04 | 1.00 | 29.00 | | |

1. RD (N) = 50
2. NRD (N) = 50

Table 4

Results for Causal Attribution Rating Scale for Reading Success

| | Reading Difficulties (N=50) | | No Reading Difficulties (N=50) | | | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | t | p |
| Attributions | | | | | | |
| Ability | 1.62 | 0.64 | 1.32 | 0.59 | 2.46 | .018** |
| Stable Attitude | 1.52 | 0.68 | 1.40 | 0.41 | 3.57 | .001* |
| Typical Effort | 1.28 | 0.54 | 1.28 | 0.50 | 0.00 | 1.000 |
| Learning | 1.46 | 0.68 | 1.48 | 0.61 | -0.14 | .886 |
| Task Ease | 1.48 | 0.68 | 1.48 | 0.65 | 0.00 | 1.000 |
| Teacher | 1.68 | 0.79 | 1.80 | 0.88 | -0.70 | .485 |
| Family | 1.46 | 0.76 | 1.24 | 0.59 | 1.63 | .109 |
| Luck | 1.62 | 0.70 | 1.66 | 0.69 | -0.31 | .755 |

* $p < .01$
** $p < .05$

Table 5

Results for Causal Attribution Rating Scale for Reading Failure

| | Reading Difficulties (N=50) | | No Reading Difficulties (N=50) | | | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | t | p |
| Attributions | | | | | | |
| Ability | 2.40 | 0.83 | 2.76 | 0.48 | -2.48 | .017** |
| Stable Attitude | 2.50 | 0.79 | 2.62 | 0.70 | -0.90 | .371 |
| Typical Effort | 2.56 | 0.76 | 2.74 | 0.53 | -1.42 | .162 |
| Learning | 2.46 | 0.73 | 2.56 | 0.64 | -0.67 | .506 |
| Task Difficulty | 2.20 | 0.76 | 2.30 | 0.84 | -0.67 | .506 |
| Teacher | 2.40 | 0.86 | 2.42 | 0.81 | -0.11 | .912 |
| Family | 2.48 | 0.76 | 2.66 | 0.66 | -1.32 | .192 |
| Luck | 2.14 | 0.88 | 2.58 | 0.61 | -3.27 | .002* |

* $p < .01$
** $p < .05$

Table 6

Total Number of Responses per Causal Attribution Category for Personal Success and Failure in Reading

| | Reading Difficulties (N=50) | | No Reading Difficulties (N=50) | |
|---|---|---|---|---|
| | Success | Failure | Success | Failure |
| Attributions | | | | |
| Liking for the Task | 0 | 0 | 1 | 0 |
| Attention | 3 | 8 | 4 | 5 |
| Stable Attitude | 0 | 0 | 2 | 0 |
| Immediate Effort | 0 | 0 | 1 | 0 |
| Typical Effort | 3 | 3 | 4 | 1 |
| Ability | 8 | 11 | 15 | 12 |
| Previous Experience | 13 | 7 | 6 | 2 |
| Task Ease/Difficulty | 2 | 7 | 2 | 13 |
| Task Interest | 0 | 0 | 0 | 1 |
| Teacher | 0 | 0 | 1 | 0 |
| Family | 1 | 0 | 2 | 0 |
| Other students | 0 | 2 | 0 | 3 |
| Strategies/Reading Performance | 11 | 4 | 6 | 3 |
| Mood | 0 | 0 | 0 | 2 |
| Miscellaneous | 0 | 0 | 0 | 1 |
| Don't know | 2 | 5 | 4 | 5 |
| Inappropriate response | 4 | 2 | 1 | 1 |
| No response | 3 | 1 | 1 | 1 |